IN THE U.S. PATENT AND TRADEMARK OFFICE

Applicant:	Taniguchi, Kouichirou	Conf.:	6075
Appl. No.:	10/523,633	Group:	1794
Filed:	February 4, 2005	Examiner:	Jackson
For:	Heat resistant film and a metal laminate thereof		

DECLARATION UNDER 37 CFR 1.132

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

I, Kouichirou Taniguchi, Nagahame, Shiga Prefecture, Japan, hereby declare and state as follows:

I graduated from Kansai University, Faculty of engineering science, Applied Chemistry Department, to get a Bachelor degree. After the graduation, I joined Mitsubishi Plastic Inc. I have been working in the Research & Development Laboratory, the Fundamental Technology Department, the High Molecule Materials Laboratory.

I am the inventor of the U.S. Application Serial No. 10/523,633, filed on February 4, 2005, entitled "Heat resistant film and a metal laminate thereof."

I herein present the experimental data that support the shape of the curve and the least squares fit line presented in our response of July 21, 2008.

Experimental

Reference Example 1

A multilayered board was prepared in the same manner as in Example 1 described in the present specification, pages 14-15, except that a resin composition comprising PEI-1, PEI-2 and PEEK in a PEI-1/PEI-2/PEEK weight ratio of 20/30/50 was used instead of the resin composition used in Example 1.

Reference Example 2

A multilayered board was prepared in the same manner as in Example 1 described in the present specification, pages 14-15, except that a resin composition comprising PEI-1, PEI-2 and PEEK in a PEI-1/PEI-2/PEEK weight ratio of 40/10/50 was used instead of the resin composition used in Example 1.

The multilayered boards thus prepared were evaluated in the same manner as described in the present specification, pages 12-14. Results are shown below in Table A in which the results described in the present specification, page 16, Table 1, are also shown.

Table A

		Example	Comparative Example			Reference Example	
		1	1	2	3	1	2
PEI－1 ,parts by weight		30	50	10		20	40
PEI－2 ,parts by weight		20		40	50	30	10
PEEK ,parts by weight		50	50	50	50	50	50
Mica ,parts by weight		25	25	25	25	25	25
Edge tearing resistance (MPa)	longitudinal	158.8	176.3	136.2	129.7	150.1	161.9
	transversal	82.9	88.1	38.2	35.5	62.7	85.5
Press temperature (℃)		250	250	250	250	250	250
Bonding strength (N／mm)		1.5	1.4	1.6	1.6	1.5	1.4
Soldering heat resistance		Good	Good	Good	Good	Good	Good
Soldering heat resistance after pressure cooker test		Good	No Good, Blistering was observed	Good	Good	Good	No Good, Blistering was observed

The edge tearing resistance data are illustrated graphically in Fig. A below together with least square fit lines shown in broken lines. In Fig.A, "Long" stands for longitudinal, "Trans" for transversal, and (A-1)/(A-1 + A-2) is a weight ratio of (A-1) to a total weihgt of (A-1) and (A-2).

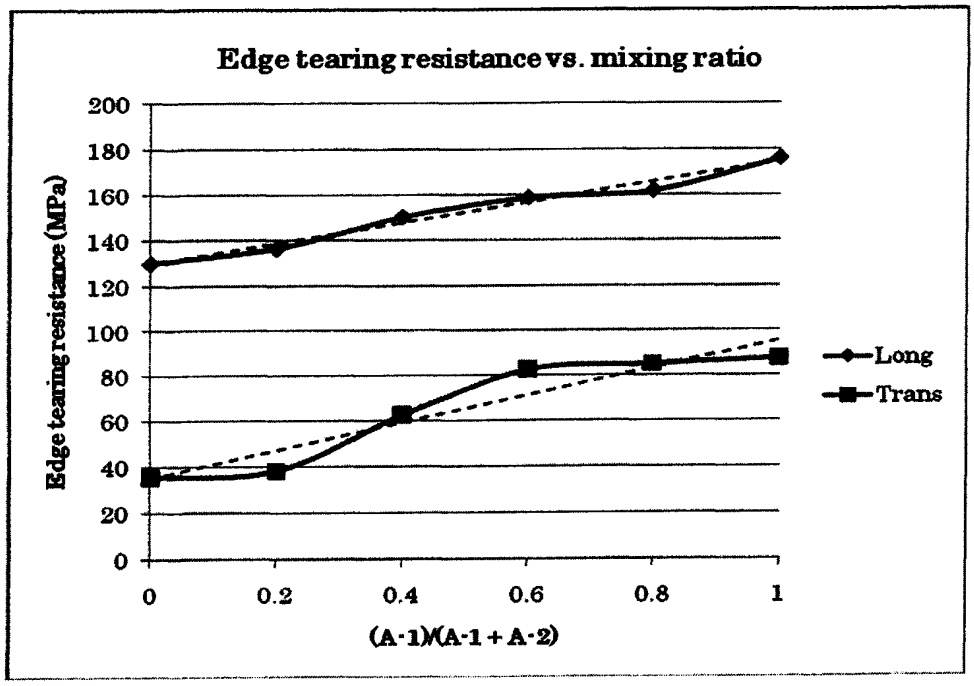

Fig. A

Discussion

As can be seen from Fig. A, the edge tearing resistance data with (A-1)/(A-1 + A-2) being 0.4(Reference Example 1) and those with (A-1)/(A-1 + A-2) being 0.8(Reference Example 2) well support the unexpected increase of edge tearing resistance, parituclarly in the transversal direaction, in the range of (A-1)/(A-2) of from 50/50 to 70/30.

The non-linear change in edge tearing resistance is considered to be caused by a complicated high-order structural change with a mixing ratio of the polyetherimide resin of the formula (1), hereinafter referred to as A-1, and the polyetherimide resin of the formula (2)hereinafter referred to as A-2.

Please note the difference in edge tearing resistance between Comparative Example 1 and Comparative Example 3. Comparative Example 3 comprising no A-1 showed significantly low edge tearing resistance than Comparative Example 1. One reason for this is occurrence of spherulites of the polyarylketone. The occurrence of the spherulites at the same time causes occurrence of non-crystalline polyetherimide rich region. This region functions as a structural defect which causes low edge tearing resistance. On the other hand, in Comparative Example 1 comprising no A-2, occurrence of the spherulites is suppressed, so that high edge tearing resistance is obtained.

The non-linear change in the edge tearing resistances with a mixing ratio of A-1 with A-2 is hence considered to be caused by change in degree of occurrence of the spherulites of polyarylketone which is not proportional to the mixing ratio.

The undersigned declares further that all statement made herein of his own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statement may jeopardize the validity of above identified application or any patent issuing thereon.

December 9, 2008
Date

Kouichirou Taniguchi
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